

What is claimed is:

1. (Currently Amended) A Method for immobilizing molecules on a surfaces of a support in which electrical sensors and processor circuits are integrated, ~~said the~~ method comprising the steps of:

- applying a layer of a hydrophobic polymer to the surface; and
- immobilizing molecules on a surface of the layer.

2. (Currently Amended) The method of claim 1, wherein the polymer is from the group comprising a polyimide and/or a polystyrene.

3. (Currently Amended) The method of claim 1, wherein the polymer layer is applied to the surface ~~only~~ in previously defined regions.

4. (Currently Amended) The method of claim 1, wherein ~~an positive or negative~~ electric charge is imparted to the surface of the polymer layer, at least in sectional fashion, by plasma treatment.

5. (Previously Presented) The method of claim 1, wherein UV-reactive molecules are covalently immobilized by irradiation with UV light.

6. (Currently Amended) The method of claim 21, wherein the polymer layer is activated, at least in sectional fashion, in an oxygen plasma.

7. (Currently Amended) The method of claim 1, wherein a portion of the surface of the polymer

layer is utilized for application with an integrated circuit (IC) or a microsystem.

8. (New) A method for immobilizing molecules on a surface, comprising the steps of applying a layer of a hydrophobic polymer to the surface, and immobilizing molecules on a surface of the layer.

9. (New) The method of claim 8, where the polymer is a polyimide.

10. (New) The method of claim 8, where the polymer is a polystyrene.

11. (New) The method of claim 8, further comprising the steps of forming at least one defined region on the surface, and applying the layer of a hydrophobic polymer to the at least one defined region on the surface.

12. (New) The method of claim 8, where the polymer layer is activated in an oxygen plasma.

13. (New) The method of claim 8, where UV-reactive molecules are covalently immobilized by irradiation with UV light.

14. (New) The method of claim 8, where an electric charge is imparted to the surface of the polymer layer by plasma treatment.

15. (New) The method of claim 8, where the molecules are biomolecules.

- 16. (New)     The method of claim 8, where the polymer comprises a non-swelling polymer.
- 17. (New)     The method of claim 8, where the surface to which the polymer layer is applied may comprise an inorganic material.
- 18. (New)     The method of claim 17, where the inorganic material is a semiconductor material.
- 19. (New)     The method of claim 18, where the semiconductor material comprises silicon.
- 20. (New)     The method of claim 17, where the inorganic material is a semiconducting oxide.